JANUARY
•
DECEMBER
1965

World Oil

DRILLING • PRODUCING • EXPLORATION • ECONOMICS • INTERNATIONAL

WILLIAM G. DUDLEY	Publisher
DONALD E. KLIEWER	Editorial Director
L. J. LOGAN	Associate Editor
DON E. LAMBERT	Associate Editor
WALLACE FITZGERALD	Managing Editor
ROBERT W. SCOTT	Engineering Editor
MEL HOBBS	Engineering Editor
HARRISON T. BRUNDAGE	Exploration Editor
ANTHONY GIBBON	Mid-Continent Editor
JACK COCKERHAM	Presentation Editor
PAT BLACKMAN	Editorial Assistant
FERN C. REED	Editorial Assistant
DIANE GILLEBAARD	Editorial Assistant
BILL LOGAN	Editorial Assistant
EUNICE M. OKONESKI	Librarian

WORLD OIL

Is Published By
GULF PUBLISHING COMPANY

Gulf Publishing Co. Executive Offices
3301 Allen Parkway, Houston, Texas
Cable Address: Gulfpubco, Houston

WILLIAM G. DUDLEY	*President*
TOM W. NELSON	*Vice Pres.-Gen. Mgr.*
R. M. DE SOMBRE	*Vice Pres.-Asst. Gen. Mgr.*
NELSON L. BIGELOW	*Vice President Sales*
MRS. RAY L. DUDLEY	*Vice President*
GEORGE R. SKELTON	*Vice. Pres.-Eastern Mgr.*
P. J. AUCOIN	*Treasurer*
L. J. LOGAN	*Secretary*

GPC PUBLICATIONS

WORLD OIL (formerly The Oil Weekly) and The COMPOSITE CATALOG for the drilling-producing industry.
PIPE LINE INDUSTRY and The PIPE LINE CATALOG for the oil and gas pipe line industry.
HYDROCARBON PROCESSING & PETROLEUM REFINER and The HYDROCARBON PROCESSING CATALOG for the hydrocarbon processing industry (HPI).

1965 ANNUAL EDITORIAL INDEX

Vol. 160, No. 1 through Vol. 161, No. 7

Index of Special Issues 2

Index by Subjects 2

Index of Maps 6

Index by Authors 7

PUBLISHED MONTHLY
EXCEPT SEMI-MONTHLY IN FEBRUARY AND AUGUST
BY
GULF PUBLISHING COMPANY

INDEX OF SPECIAL ISSUES AND SPECIAL REPORTS

Issue	Date
Forecast-Review Issue	Feb. 15
Exploration Report	April
International Offshore Report	May
API Drilling-Production Report	June
International Outlook Issue	Aug. 15
Drilling Progress Report	Oct.
Production Progress Report	Nov.

INDEX BY SUBJECTS

CONTENTS OF SUBJECT INDEX

Classification of Material	Page of Index
Drilling Articles	2
Production Articles	3
Practical Operating Hints	4
Exploration Articles	4
Economic Articles	5
International Articles	6
Editorials	6
Maps	7
Authors' Index	7

DRILLING ARTICLES

Subject — Title — Author	Issue	Page
Automation. Advancements in the Drilling Industry. Mel Hobbs	Feb. 15	67
Offshore Challenges. Mel Hobbs	May	118
North Sea Drilling. Mel Hobbs	May	121
French Flexible Drillstem Tools and Techniques Look Good. J. Delacour	July	78
Air Drilling. Economics of Percussion vs. Air Rotary Drilling. R. E. Bates, Jr.	Feb. 1	51
Advancements in The Drilling Industry. Mel Hobbs	Feb. 15	67
Air-Gas Drilling Volume-Velocity Requirements. Preston Moore	April	173
How To Overcome Severe Air Drilling Problems. Joseph F. Leisek	July	95
Aerated Fluid Drilling Can Be Effective. A. H. G. Pinks	Aug. 1	71
Latest Techniques in Big Hole Drilling-Completions. H. L. Caldwell	Sept.	103
Mechanics and Economics of Big Hole Drilling. (Part 1). Thomas B. Dellinger	Oct.	123
Big Holes. New Cementing Process For Big Pipe in a Salt Plug. L. D. Boughton and T. B. Dellinger	Jan.	105
Latest Techniques in Big Hole Drilling-Completions. H. L. Caldwell	Sept.	103
Mechanics and Economics of Big Hole Drilling (Part 1). Thomas B. Dellinger	Oct.	123
Mechanics and Economics of Big Hole Drilling (Part 2). Thomas B. Dellinger	Nov.	126
Mechanics and Economics of Big Hole Drilling (Part 3). Thomas B. Dellinger	Dec.	100
Bits. New Bit Concept Helps Control Hole Deviation. S. R. Knapp	Jan.	113
Drag Bits Rate New Look in Light of Speed Drilling. Dr. Richard V. Hughes	March	93
Safe Way to Clear Plugged Bits. Filipe A. M. da Silva	Aug. 1	114
Mechanics and Economics of Big Hole Drilling (Part 1). Thomas B. Dellinger	Oct.	123
Mohole Phase 2 on Schedule, Cost Now Up to $100 Million. Mel Hobbs	Oct.	129
Mechanics and Economics of Big Hole Drilling (Part 3) Thomas B. Dellinger	Dec.	100
Casing. Latest Techniques in Big Hole Drilling-Completion. H. L. Caldwell	Sept.	103
Mechanics and Economics of Big Hole Drilling (Part 1). Thomas B. Dellinger	Oct.	123
Mechanics and Economics of Big Hole Drilling (Part 2). Thomas B. Dellinger	Nov.	126
A New Approach to Tubular String Design (Part 1). W. C. Goins, B. J. Collings and T. B. O'Brien	Nov.	135
A New Approach to Tubular String Design (Part 2). W. C. Goins, B. J. Collings and T. B. O'Brien	Dec.	83
Mechanics and Economics of Big Hole Drilling (Part 3). Thomas B. Dellinger	Dec.	100
Cementing. New Cementing Process for Big Pipe in a Salt Plug. L. D. Boughton and T. B. Dellinger	Jan.	105
Advancements in the Drilling Industry. Mel Hobbs	Feb. 15	67
Smackover Drilling Problems in South Texas. Todd C. Storer	June	108
Long Fluid Life Cementing Technique Looks Good. Dave Underwood, Pat J. Broussard and Wayne Walker	June	136
Latest Techniques in Big Hole Drilling-Completion. H. L. Caldwell	Sept.	103
New $CaCO_3$ Lost Return Sealing Slurry Looks Good. J. R. Sheffield	Oct.	133
Circulation Systems. Libya – A Dynamic New Arab Oil Power. Mel Hobbs	June	147
Aerated Fluid Drilling Can Be Effective. A. H. G. Pinks	Aug. 1	71
Big Hole Drilling Technology in Changing. H. L. Caldwell	Sept.	103
Asbestos in Drill Water Helps Cut Drilling Cost. William C. Smith	Sept.	116
New $CaCO_3$ Lost Return Sealing Slurry Looks Good. J. Riley Sheffield	Oct.	133
Completion Methods. Long Fluid Life Cementing Technique Looks Good. Dave Underwood, Pat J. Broussard and Wayne Walker	June	136
Libya – A Dynamic New Arab Oil Power. Mel Hobbs	June	147
Contracts. What Can Drilling Contractors Do About the Growing Cost-Price Squeeze? Mel Hobbs	Feb. 1	71
How to Cut Costs in Exploratory Drilling. C. F. Green	July	103
Contractors. What Can Drilling Contractors Do About the Growing Cost-Price Squeeze? Mel Hobbs	Feb. 1	71
Advancements in the Drilling Industry. Mel Hobbs	Feb. 15	67
Key to Contractor Survival May be to Upgrade Old Rigs. R. M. Moran and K. D. McPeters	May	156
AAODC Re-Aligns its Regions	Oct.	148
Coring. French Flexible Drillstem System Looks Good. J. Delacour	July	78
Unique Rig Cuts Continuous Cores	Oct.	145
Corrosion. Aerated Drilling Pays Off. A. H. G. Pinks	Aug. 1	71
Costs. Economics of Percussion Versus Air Rotary Drilling. Robert E. Bates, Jr.	Feb. 1	51
What Can Drilling Contractors Do About the Growing Cost-Price Squeeze? Mel Hobbs	Feb. 1	71
Cost-Price Squeeze Grips Well Servicing Contractors Mel Hobbs	March	81
Efficient Desilting Can Help Cut Drilling Cost. George S. Ormsby	May	145
Key to Contractor Survival May be to Upgrade Old Rigs. R. M. Moran and K. D. McPeters	May	156
How to Cut Costs in Exploratory Drilling. C. F. Green	July	103
Mechanics and Economics of Big Hole Drilling (Part 1). Thomas B. Dellinger	Oct.	123
Mechanics and Economics of Big Hole Drilling (Part 2). Thomas B. Dellinger	Nov.	126
Mechanics and Economics of Big Hole Drilling (Part 3). Thomas B. Dellinger	Dec.	100
Crooked Hole Problems. New Bit Concept Helps Control Hole Deviation. S. R. Knapp	Jan.	113
Pan American Finds Square Drill Collars Effective. Floyd W. Boyd, Jr. and Richard C. McRae	June	127
Packed Hole Drilling Pays Off for SOCAL. Stanley O. Hutchison and N. L. Mitchell	Aug. 1	80
Deep Drilling. Wyoming Oil Strike Sparks Million-Acre Lease Play. Joseph A. Kornfeld and Maury M. Travis	April	176
Smackover Drilling Problems in South Texas. Todd C. Storer	June	108
West Texas Deep Play Spawns New Production Depth Record. Joseph A. Kornfeld	July	128
Nation's Hottest Drilling Play (in West Texas) Has 30 Rigs Working Below 20,000 Feet	Dec.	110
Drilling Activity. Monthly Record of Wells Completed and Wells Drilling in U.S., by States. Tables, Charts and Comments. In Front Part of Magazine	Each Issue	
U.S. Drilling Upturn is Predicted for 1965	Feb. 15	97
Average Number of Active Rigs Up in 1964	Feb. 15	99
Seven Area Depth Records Established During 1964	Feb. 15	100
Drilling Equipment. Advancements in Drilling Industry. Mel Hobbs	Feb. 15	67
New British Turbodrill Successful in Tests	March	76

DRILLING ARTICLES—Continued

Subject	Title	Author	Issue	Page
	Key to Contractor Survival May be to Upgrade Old Rigs.	R. M. Moran and K. D. McPeters	May	156
	French Flexible Drillstem Tools and Techniques Look Good.	J. Delacour	July	78
	Big Hole Drilling Technology is Changing.	H. L. Caldwell	Sept.	103
	Mechanics and Economics of Big Hole Drilling (Part 1).	Thomas B. Dellinger	Oct.	123
	Mahole Phase 2 on Schedule; Cost Now Up to $100 Million.	Mel Hobbs	Oct.	129
	Unique Rig Cuts Continuous Cores		Oct.	145
	Mechanics and Economics of Big Hole Drilling (Part 2).	Thomas B. Dellinger	Nov.	126
	Mechanics and Economics of Big Hole Drilling (Part 3).	Thomas B. Dellinger	Dec.	100
Drilling Fluids. (See Circulation Systems.)				
Drilling Strings.	Smackover Drilling Problems in South Texas	Todd C. Storer	June	108
	French Flexible Drillstem System Looks Good.	J. Delacour	July	78
	Packed Hole Drilling Pays Off For SOCAL.	Stanley O. Hutchison and N. L. Mitchell	Aug. 1	80
	Latest Techniques in Big Hole Drilling-Completion.	H. L. Caldwell	Sept.	103
	Mechanics and Economics of Big Hole Drilling (Part 2)	Thomas B. Dellinger	Nov.	126
Economics of Drilling. (See Costs.)				
Liners. (See Casing.)				
Lost Circulation.	Aerated Drilling Pay Off.	A. H. G. Pinks	Aug. 1	71
	New $CaCO_3$ Lost Return Sealing Slurry Looks Good.	J. R. Sheffield, Jr.	Oct.	133
Offshore Drilling.	Two New Ocean Drilling Rigs to be Launched Soon.		Jan.	123
	New Jack-Up Workover Rig Can Work in 90-Foot Water.		Feb. 1	106
	Economic 600-Foot Water Operations Expected.	K. G. Young, Jr.	April	151
	World-Wide Offshore Activity Roundup.	Harrison T. Brundage	May	102
	Offshore Drilling Practices.	Mel Hobbs	May	110
	Where Offshore Rigs Are Operating Throughout The Free World.	Mel Hobbs	May	116
	Offshore Challenges.	Mel Hobbs	May	118
	North Sea Drilling.	Mel Hobbs	May	121
	French Flexible Drillstem System Looks Good.	J. Delacour	July	78
	Kermac Rig 46's 7,000 Mile Trip to Nigeria.	Merlin Brunette	Aug. 1	107
	Drilling and Producing Wells Offshore From Nigeria		Aug. 15	76
	Mahole Phase II on Schedule; Cost now up to $100 Million	Mel Hobbs	Oct.	129
	Humble's Twin-Rig Drilling Program is Cutting Costs.	C. C. Taylor and J. T. Murff	Oct.	140
	New Offshore Rigs Working Off Mexican and Texas Coast		Oct.	143
	North Sea Hopes Spurred by Two Wildcat Gas Tests.		Dec.	117
Practices, Problems, Techniques.	Advancements in the Drilling Industry.	Mel Hobbs	Feb. 15	67
	Efficient Desilting Can Help Cut Drilling Costs.	George S. Ormsby	May	145
	Smackover Drilling Problems in South Texas.	Todd C. Storer	June	108
	Pan American Finds Square Drilling Collars Effective.	Floyd W. Boyd, Jr. and Richard C. McRae	June	127
	Mahole Phase II on Schedule; Cost now up to $100 Million	Mel Hobbs	Oct.	129
	New $CaCO_3$ Lost Return Sealing Slurry Looks Good.	J. R. Sheffield, Jr.	Oct.	133
Reverse Circulation.	Unique Rig Cuts Continuous Cores		Oct.	145
Rig Maintenance.	The Growing Cost-Price Squeeze.	Mel Hobbs	Feb. 1	71
	Key to Contractor Survival May be to Upgrade Old Rigs.	R. M. Moran and K. D. McPeters	May	156
Rig Power.	Fuel Performance Maps Used to Evaluate Diesel Engine Efficiency.	Herbert H. Weiss	April	157
Straight Hole Drilling. (See Crooked Hole Problems.)				
Transportation.	Kermac Rig 46's 7,000 Mile Trip to Nigeria.	Merlin Burnette	Aug. 1	107
Turbodrill.	New British Turbodrill Is Successful in Tests		March	76
Workovers.	Cost-Price Squeeze Grips Well Servicing Contractors.	Mel Hobbs	March	81

PRODUCTION ARTICLES

Subject	Title	Author	Issue	Page
API Papers.	Steam Stimulation For Secondary Recovery.	William D. Owens and V. E. Suter	June	100
	Small, Packaged Gasoline Plants Boost Income From Lease Gas Streams.	Jack C. Williams	June	133
	Here's a Practical View of Oil Field Hydraulics Today.	Riley G. Goldsmith	June	140
	How and When to Automate Well Producing Facilities.	James Terris	June	123
Artificial Lift.	Artificial Lift Needs to be Up Slightly in 1965		Feb. 15	103
	Pumping Short Courses Can Make Money For Your Company.	Howard W. Swaim	March	63
	New Deep Well Pumping Unit Has 32-Foot Stroke		Sept.	107
	New Way to Handle Rods Saves Time and Money		Nov.	134
Automation.	Vacuum Stabilizers Boost Income, Minimize Production Problems.	R. W. Scott	Jan.	129
	How SOCAL Monitors Offshore Production.	J. D. Strickler	Feb. 1	60
	Offshore Production Practices.	Robert W. Scott	May	124
	How and When to Automate Well Producing Facilities.	James Terris	June	123
	Solving LACT problems in The Anadarko Basin.	William A. Beatty	July	106
	Operating and Maintaining Oil Field Metering Equipment.	J. D. Storts	Aug. 1	102
	Automatic Well Testing Pays Off on Sunray Fluid Injection Project.	W. B. Morgan	Oct.	161
Cementing.	Here's a Practical View of Oil Field Hydraulics Today.	Riley G. Goldsmith	June	140
	Engineered Well Completions Solve Waterflood Communication Problem.	W. C. Ireland and L. B. Deckert	Aug. 1	77
	Well Completion Ideas For Fluid Injection Projects.	Kermit G. Rowley	Dec.	73
Completion Methods.	Recent Developments in Production.	R. W. Scott	Feb. 15	77
	Engineered Well Completions Solve Waterflood Communication Problem.	W. C. Ireland and L. B. Deckert	Aug. 1	77
	Drilling and Producing Wells Offshore From Nigeria		Aug. 15	76
	How to Restore Productivity From Mud Damaged Formations.	Francis N. Harris and John Padgett	Sept.	112
	Well Completion Ideas for Fluid Injection Projects.	Kermit G. Rowley	Dec.	73
	Solving Mechanical Problems in Steam Stimulated Wells.	Lawrence A. Eckert	Dec.	89
Formation Evaluation.	Combining Log Data on Charts Speeds Formation Evaluation.	E. A. Paschale, Jr.	March	79
	How to Find Gulf Coast Gas With Sonic and Neutron Logs.	Don D. Fitzgerald	April	140
	Latest Developments in Formation Evaluation.	Dr. Hamilton M. Johnson	April	143
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 1).	Ralph W. Jackson	Oct.	167
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 2).	Ralph W. Jackson	Nov.	131
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 3).	Ralph W. Jackson	Dec.	97
Gas Injection.	Humble Recovers Attic Oil with Unique Inert Gas System.	F. S. Godbold	May	151
	Well Completion Ideas for Fluid Injection Projects.	Kermit G. Rowley	Dec.	73
In Situ Combustion. (See Thermal Recovery.)				
Natural Gas.	Recent Developments in Production.	R. W. Scott	Feb. 15	77
	Analyzing Gas Well Performance with Wellhead Performance Curves.	Daryl L. Smith	April	165
	How To Make Money from Quick Cycle Units.	Don Ballard	May	164
	Small, Packaged Gasoline Plants Boost Income from Lease Gas Streams.	Jack C. Williams	June	133
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 1).	Ralph W. Jackson	Oct.	167
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 2).	Ralph W. Jackson	Nov.	131
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 3).	Ralph W. Jackson	Dec.	97
Offshore Operations.	New Offshore Field Uses Tankers for Storage		Jan.	109
	How SOCAL Monitors Offshore Production.	J. D. Strickler	Feb. 1	60
	Offshore Production Practices.	Robert W. Scott	May	124
	Tenneco Has New Idea in Offshore Oil Storage		July	94
	Drilling and Producing Wells Offshore from Nigeria		Aug. 15	76
	New Hydraulically Powered Rig.	Robert W. Scott	Dec.	94
Perforating.	How to Restore Productivity from Mud Damaged Formation.	Francis N. Harris and John Padgett	Sept.	112
	New Wireline Lift Barge Goes to Work Off Texas		Oct.	152
Production Progress Report.			Nov.	101
Pumping. (See Artificial Lift.)				
Reservoir Engineering.	Analyzing Gas Well Performance with Wellhead Performance Curves.	Daryl L. Smith	April	165
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 1).	Ralph W. Jackson	Oct.	167
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 2).	Ralph W. Jackson	Nov.	131
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 3).	Ralph W. Jackson	Dec.	97
Secondary Recovery. (See Gas Injection, Thermal Recovery, Waterflooding.)				
Storage.	New Offshore Field Uses Tankers for Storage.		Jan.	109
	Vacuum Stabilizers Boost Income, Minimize Production Problems.	Robert W. Scott	Jan.	129
	Offshore Production Practices.	Robert W. Scott	May	124
	Tenneco Has New Idea in Offshore Oil Storage		July	94
Thermal Recovery.	Thermal Recovery Comes of Age.	John Howard	Jan.	95
	Here's Where to Look for Thermal Recovery Prospects		Feb. 1	82
	Recent Developments in Production.	Robert W. Scott	Feb. 15	77
	Steam Stimulation for Secondary Recovery.	William D. Owens and V. E. Suter	June	100
	Mid-Continent Fireflloods are Gaining Momentum.	Joseph A. Kornfeld	June	169
	Free Piston Engines Power 8,000 HP In Situ Combustion Compressor Plant.	A. V. Barnett, E. O. Kozey and W. C. Spencer	July	71
	Ignition Equipment for Thermal Drive Projects		July	89
	Is Thermal Recovery the Answer to Economic Production of Shale Oil?	James H. Gary	Aug. 1	98
	Stimulating Viscous Oil Reservoirs with Downhole Air-Gas Burners.	H. Brandt, W. G. Poynter and J. D. Hummell	Sept.	91
	Solving Mechanical Problems in Steam Stimulated Wells.	Lawrence A. Eckert	Dec.	89
Waterflooding.	Shallow Waterflooding Projects are Paying Off in New Mexico.	Joe T. Ramey	Feb. 1	68
	Recent Developments in Production.	R. W. Scott	Feb. 15	77

PRODUCTION ARTICLES—Continued

Subject	Title	Author	Issue	Page
	How to Handle Produced Water for Reinjection on Waterfloods.	Ben Sloat	March	85
	Here is a Practical View of Oil Field Hydraulics Today.	Riley G. Goldsmith	June	140
	Wide-Spaced Waterflood Pays Off for Marathon.	M. B. Todd	July	90
	Engineered Well Completions Solve Waterflood Communication Problem.	W. C. Ireland and L. B. Deckert	Aug. 1	77
	Shallow, 443-Acre Waterflood Recovers 2.5 Million Barrels of Oil in 4½ Years.	E. A. Riley and T. P. Bates	Sept.	119
	New Tool Automatically Controls Waterflood Injection Rates.	L. F. Castro and J. H. Oden	Oct.	156
	Automatic Well Testing Pays Off on Sunray Fluid Injection Project.	W. B. Morgan	Oct.	161
	Well Completion Ideas for Fluid Injection Projects.	Kermit G. Rowley	Dec.	73
Well Logging.	(See Formation Evaluation.)			
Wells, Producing.	Producing Oil Wells in U.S. Decrease Further		Feb. 15	104
	Producing Gas Wells in U.S. Continue to Increase		Feb. 15	105
	Forest Oil Sets World Producing Depth Record		Feb. 15	106
Well Stimulation.	Recent Developments in Production.		Feb. 15	77
	Here's a Practical View of Oil Field Hydraulics Today.	Riley G. Goldsmith	June	140
	Stimulating Viscous Oil Reservoirs with Downhole Air-Gas Burners.	H. Brandt, W. G. Poynter and J. D. Hummell	Sept.	91
	How to Restore Productivity from Mud Damaged Formations.	Francis N. Harris and John Padgett	Sept.	112
	New Ideas in Fracturing Deep Wells.	D. H. Flickinger	Oct.	149
	Solving Mechanical Problems in Steam Stimulated Wells.	Lawrence A. Eckert	Dec.	89
Well Testing.	Analyzing Gas Well Performance with Wellhead Performance Curves.	Daryl L. Smith	April	165
	Operating and Maintaining Oil Field Metering Equipment.	J. D. Storts	Aug. 1	102
	Automatic Well Testing Pays Off on Sunray Fluid Injection Projects.	W. B. Morgan	Oct.	161
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 1).	Ralph W. Jackson	Oct.	167
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 2).	Ralph W. Jackson	Nov.	131
	How to Find Productive Limits of Hydrocarbon Reservoirs (Part 3).	Ralph W. Jackson	Dec.	97
Workovers.	Recent Developments in Production.	Robert W. Scott	Feb. 15	77
	Offshore Production Practices.	Robert W. Scott	May	124
	How to Restore Productivity from Mud Damaged Formation.	Francis N. Harris and John Padgett	Sept.	112
	New Wireline Lift Barge Goes to Work Off Texas.		Oct.	152
	New Hydraulically Powered Rig Designed for Offshore Workovers.	Robert W. Scott	Dec.	94

PRACTICAL OPERATING HINTS

Title	Issue	Page
"Lightweight" Lifting Done with Pickup Gin Poles	Jan.	41
This Device Speeds Roof Assembling	Jan.	41
Heater Built of Scrap Also Drys Samples	Feb. 1	17
A Simplified Method for Changing Engine Oil	Feb. 1	17
Conserve Power on Field Vehicles	Feb. 1	20
Use Metal Tags for Choke Record	Feb. 1	20
Bury Motor Valve to Prevent Freezing	Feb. 1	20
"Portable" Thermo Test Well	March	35
Core Line Support Made from Drill Pipe Section	March	35
Make a Night Cap that is Really Leakproof	March	36
Rods and Pistons Handily Stored	March	36
This Homemade Viscometer is Inexpensive, Easy to Use	April	32
Trailer-Mounted Pipe Rack for Shallow Drilling Rigs	April	32
Cotton Seed Hulls Keep Rig Floor Safe	April	34
Cable on Truck Connects Tow Lines	April	34
This Device Speeds Repair of In-Service Gas Lines	May	83
Ordinary Flashlight Used to Make Quick Fuse Check	May	83
Winch on Welding Truck Powers Pipe Cutter-Dies	May	83
This Homemade Winch Easily Adjusts Your Treater Siphon	June	85
This Safety Bolt on Side of Hook Prevents Accidents	June	85
Wellhead Connections Ease Well Maintenance	June	88
Simple Guides Align Tank Battery Piping	June	88
Casing Board Raised, Lowered with Air Hoists	June	93
Air Powered Hoist Handles Pipe Easily	July	31
This Electric Line Wrap Will Keep Your Separator Thawed	July	31
Color Code Separators to Identify Leases	July	32
Manifolded Pop Valves Good Housekeeping Idea	July	32
Manifold Sample Lines to Keep Area Clean	July	32
Hinged Spreader Opens Pig Trap Doors Easily	Aug. 1	40
Use Gas Pressure to Fill Raised Compressor Radiators	Aug. 1	40
Speed Wrench Unloads or Loads Compressor Faster	Aug. 1	42
Permanent Hookup Speeds Stock Tank Rolling	Aug. 1	42
Sump Beneath Rig Floor Saves Mud	Sept.	46
Elevated Steam Discharge Line Protects Personnel	Sept.	46
Hinged Legs Help Support Workover Rig Derrick	Oct.	34
This 'automated' Lube System Activated by Starting Air	Oct.	34
Standby Engine's Cold Weather Starts Made Easy	Nov.	86
Reduce Current Exchange Through Resistance Bond	Nov.	86
Keep the Driller Behind Bars – and Safe	Nov.	88
Easy Way to Add Oil to Mud System	Nov.	88
Here's Another Space Saver for Offshore Drilling Platforms	Dec.	54
Fulcrum Pivoted Rods Help Remove Compressor Valves	Dec.	54

EXPLORATION ARTICLES

Subject	Title	Author	Issue	Page
API Papers.	How to Handle and Process Soft and Unconsolidated Cores.	Harley Y. Jennings, Jr.	June	116
Aerial Surveys.	Airborne Laser Profiler Aids Photogeologic, Gravity Work		June	166
Air and Gas Drilling.	Will Officer and Amadeus Basins Both be Productive?	E. A. Webb	June	160
Alaska.	Logistics of Geophysical Operations in Alaska.	Joseph A. Riendl	Feb. 1	65
Appraisal, Evaluation.	How to Apply Fluid Mechanics to Exploration (Part 1).	J. W. Roach	March	71
	How to Apply Fluid Mechanics to Exploration (Part 2).	J. W. Roach	April	131
	How to Evaluate Exploration Prospects.	Ben F. Rummerfield and Norman S. Morrisey	April	126
Biohermal Reservoirs.	First New Mexican Reef Detritus Oil Pools Found Downdip from Abo Trend.	John W. Runyan	March	99
	Facies Analysis Aids Reef Exploration and Development.	J. E. Klovan	May	141
Canada.	Exploration Outlook 1965		April	114
	Facies Analysis Aids Reef Exploration and Development.	J. E. Klovan	May	141
Colorado.	How to Evaluate Oil Shale by Well Log Analysis.	S. R. Bardsley and S. T. Algermissen.	Aug. 1	94
Coring, Cores.	(Also see Drilling and Production Articles.)			
	How to Handle and Process Soft and Unconsolidated Cores.	Harley Y. Jennings, Jr.	June	116
	Core Slabbing Aids Detailed Study, Lowers Storage Cost.	R. L. Boone and Don Moore	July	99
Discoveries.	(See Economic Articles: Wells Completed.)			
Electronic Computers.	Mathematically-Derived Prospects Yield Successful Discovery Case Histories.	John P. Dowds	Sept.	96
Equipment.	Logistics of Geophysical Operations in Alaska.	Joseph A. Riendl	Feb. 1	65
Exploration, Misc.	What Management Expects of Explorationists.	G. H. Galloway, J. L. Starnes, V. J. Berry, Jr., and Neal J. Smith	April	107
Florida.	Sunoco-Felda Discovery Puts South Florida in the Spotlight.	Joseph A. Kornfeld	May	172
Formation Evaluation.	How to Apply Fluid Mechanics to Exploration (Part 1).	J. W. Roach	March	71
	How to Apply Fluid Mechanics to Exploration (Part 2).	J. W. Roach	April	131
	Porosity, Bulk Density Gaged from Gamma Ray Scattering		July	102
	How to Evaluate Oil Shale by Well Log Analysis.	S. R. Bardsley and S. T. Algermissen	Aug. 1	94
Geochemical Methods.	Case Histories Show Results of Drilling Geochemical Prospects.	Leo Horvitz	Nov.	161
	Crude Oil Composition – A Clue to Migration.	Edwin W. Biederman, Jr.	Dec.	78
Geophysical Crews.	World Geophysical Activity on Plateau for Two Years (Annual Survey of Geophysical Crews in Operation, by Countries, as Compiled by Society of Exploration Geophysicists).		Aug. 15	88
Geophysics.	Geophysical Case Histories Aid North Sea Exploration.	Rudolph G. Wuerker	Jan.	117
	Logistics of Geophysical Operations in Alaska.	Joseph A. Riendl	Feb. 1	65
	Exploration's Widening Technology.	Harrison T. Brundage	Feb. 15	87
Gravity Method.	Geophysical Case Histories Aid North Sea Exploration.	Rudolph G. Wuerker	Jan.	117
	Airborne Laser Profiler Aids Photogeologic, Gravity Work		June	166
Kansas.	Mathematically-Derived Prospects Yield Successful Discovery Case Histories.	John P. Dowds	Sept.	96
Lithology.	First New Mexican Reef Detritus Oil Pools Found Downdip From Abo Trend.	John W. Runyan	March	99
	Facies Analysis Aids Reef Exploration and Development.	J. E. Klovan	May	141

EXPLORATION ARTICLES—Continued

Subject	Title	Author	Issue	Page
Nevada.	Eastern Nevada is a Gamble, but Production is Rising.	Robert C. Horton	July	84
New Mexico.	First New Mexican Reef Detritus Oil Pools Found Downdip from Abo Trend		March	99
Oceanography.	Brackish, Glacial Strata are Likely Oil Source Beds.	L. F. Ivanhoe	Feb. 1	75
	French Flexible Drillstem System Looks Good.	J. Delacour	July	78
	High-Frequency Sound Pulser Echoes Help Map Sea Floor.	T. F. Gaskell	Sept.	127
Offshore.	Exploration's Widening Technology.	Harrison T. Brundage	Feb. 15	87
	Offshore Exploration Practices.	Harrison T. Brundage	May	109
	High-Frequency Sound Pulser Echoes Help Map Sea Floor.	T. F. Gaskell	Sept.	127
Origin of Petroleum.	Crude Oil Composition – a Clue to Migration.	Edwin W. Biederman, Jr.	Dec.	78
Oklahoma.	Mathematically-Derived Prospects Yield Successful Discovery Case Histories.	John P. Dowds	Sept.	96
Photogeology.	Airborne Laser Profiler Aids Photogeologic, Gravity Work		June	166
	Automated Aerial Photo Lab Enhances Tonal Analysis		June	168
Reefs.	First New Mexican Reef Detritus Oil Pools Found Downdip from Abo Trend.	John W. Runyan	March	99
	Facies Analysis Aids Reef Exploration and Development.	J. E. Klovan	May	141
Reserves.	Proving Up of Oil Reserves Fails to Equal Production.		Feb. 15	110
	Gas Reserves Increase in Spite of High Production		Feb. 15	112
Rocky Mountains.	Wildcats to go Deeper in Rocky Mountain Basins		Nov.	150
Seismograph.	Laser Yields Important Breakthrough in Seismic Data Analysis		Jan.	112
	Geophysical Case Histories Aid North Sea Exploration.	Rudolph G. Wuerker	Jan.	117
	Logistics of Geophysical Operations in Alaska.	Joseph A. Riendl	Feb. 1	65
	Exploration's Widening Technology.	Harrison T. Brundage	Feb. 15	87
South Dakota.	Red River Oil Strike Stirs South Dakota Activity.	Joseph A. Kornfeld	Feb. 1	79
Texas.	Path Strikes Spark Hot Drilling Play.	W. P. Blackman	Jan.	125
	New Strikes are Keeping East Texas Activity Hot.	Joseph A. Kornfeld	March	113
	Deep Gas-Distillate Strikes Bring Southeast Texas Drilling Play.	Joseph A. Kornfeld	Aug. 1	110
	Case Histories Show Results of Drilling Geochemical Prospects.	Leo Horvitz	Nov.	161
	Nation's Hottest Drilling Play (in West Texas) Has 30 Rigs Working Below 20,000 Feet		Dec.	110
Uinta Basin.	How to Evaluate Oil Shale by Well Log Analysis.	S. R. Bardsley and S. T. Algermissen	Aug. 1	94
	There's New Life in Uinta Basin.	Joseph A. Kornfeld and Maury M. Travis	Nov.	146
United States.	Exploration Outlook – 1965		April	114
Utah.	How to Evaluate Oil Shale by Well Log Analysis.	S. R. Bardsley and S. T. Algermissen	Aug. 1	94
Wildcats.	(Also see Economic Articles.) Monthly Statistical Record of Wildcats Completed in U.S., by States		Each Issue	
Wyoming.	Wyoming Oil Strike Sparks Million-Acre Lease Play.	Joseph A. Kornfeld and Maury M. Travis	April	176

ECONOMIC ARTICLES

Subject	Title	Author	Issue	Page
Active Drilling Areas.	Path Sand Strikes Spark Hot Drilling Play.	W. P. Blackman	Jan.	125
	Red River Oil Strike Stirs South Dakota Activity.	Joseph A. Kornfeld	Feb. 1	79
	New Strikes are Keeping East Texas Activity Hot.	Joseph A. Kornfeld	March	113
	Wyoming Oil Strike Sparks Million-Acre Lease Play.	Joseph A. Kornfeld and Maury M. Travis	April	176
	Sunoco-Felda Discovery Puts Florida in the Spotlight.	Joseph A. Kornfeld	May	172
	Mid-Continent Fireflloods are Gaining Momentum.	Joseph A. Kornfeld	June	169
	West Texas Deep Play Spawns New Production Depth Record.	Joseph A. Kornfeld	July	128
	Deep Gas-Distillate Strikes Bring Southeast Texas Drilling Play.	Joseph A. Kornfeld	Aug. 1	110
	Western Canada's Devonian Reef Play Surges Ahead.	Joseph A. Kornfeld	Sept.	124
	Million-Acre Gas Field Under Development in San Juan Basin.	Joseph A. Kornfeld	Oct.	172
	There's New Life in Uinta Basin.	Joseph A. Kornfeld and Maury A. Travis	Nov.	146
	Nation's Hottest Drilling Play (in West Texas) Has 30 Rigs Working Below 20,000 Feet		Dec.	110
Atomic Energy.	Nuclear Energy to Play Bigger Role in Petroleum.	Don E. Lambert	Aug. 1	17
Company Operations.	Smaller Firms' Share of U.S. Drilling and Production Declining.	Don E. Lambert	May	11
Conservation.	What to Expect from IOCC Efficiency Report.	Don E. Lambert	Feb. 1	25
Costs.	Why Natural Gas is Outpacing Oil.	Henry J. Struth	Jan.	133
Crude Oil.	Why Natural Gas is Outpacing Oil.	Henry J. Struth	Jan.	133
	Crude Prices Remain Near Same Level as Six Years Ago		Feb. 15	96
	U.S. Crude Oil Production Heads for New High in 1965		Feb. 15	102
	Smaller Firms' Share of U.S. Drilling and Production Declining		May	11
	Many Will be Helped – Some Hurt in Changing Era for Crude Oil.	Don E. Lambert	July	13
Demand.	Growing Demand Requires More Supply		Feb. 15	93
	Free World Oil Demand May Triple in 35 Years.	Edward C. Borrego	Dec.	106
Drilling Activity.	Smaller Firms' Share of U.S. Drilling and Production Declining.	Don E. Lambert	May	11
	12 Candid Views on Drilling's Future.	Don E. Lambert	Oct.	115
Earnings.	Most Firms Expect to Set Earning Records.	Don E. Lambert	April	11
Energy.	Many Will Be Helped – Some Hurt in Changing Era for Crude Oil.	Don E. Lambert	July	13
	Energy R and D – Is Federal Involvement Getting Out of Hand.	Don E. Lambert	Aug. 1	15
	Fall Meetings Stressed Three Themes: Drilling-Production Status, Future of Energy, Government-Public Relations.	Don E. Lambert	Dec.	11
	Free World Oil Demand May Triple in 35 Years.	Edward C. Borrego	Dec.	106
Engineers.	Petroleum and The Engineer Crisis.	Don E. Lambert	June	19
	Growing Competition For Business, Science and Engineering Talent.	Frank Ikard	June	120
Financing.	Undeveloped Secondary Recovery Acquisitions Can be Financed.	E. G. Jackson and W. W. Wilson	Sept.	108
Government.	What to Expect From IOCC Efficiency Report.	Don E. Lambert	Feb. 1	25
	Where Oil Stands In Today's Economy.	Don E. Lambert.	March	13
	Energy R and D – Is Federal Involvement Getting Out of Hand?	Don E. Lambert	Aug. 1	15
	What Federal Control Means to Natural Gas Producers.	Charles O'Connor	Nov.	141
	Fall Meetings Stressed Three Themes: Drilling-Production Status, Future of Energy, Government-Public Relations.	Don E. Lambert	Dec.	11
Hurricanes.	Hurricane Betsy – Petroleum's Most Expensive Storm.	Don E. Lambert	Oct.	11
	An Oceanographer Looks at Betsy		Oct.	20
Imports.	Imports Are Approaching 2.4 Million Barrels Daily		Feb. 15	95
Independents.	Where Oil Stands in Today's Economy.	Don E. Lambert	March	13
	Smaller Firms' Share of U. S. Drilling and Production Declining.	Don E. Lambert	May	11
Investment.	Spending to Reach Near-Record Level.	Don E. Lambert	Jan.	19
Looking Ahead.	Monthly 1-page Feature: Forecast of Oil Industry Developments. In front part of magazine		Each Issue	
Logging and Perforating.	Well Logging Firms Gear for New Industry Trends.	Don E. Lambert.	Oct.	181
Management.	Are Your Employees Honest?	Norman J. Jaspan	March	90
	Executive Obsolescence – Its Causes and Cures.	L. J. Weigle	April	159
Markets.	Petroleum Trends at a Glance. A monthly feature in front part of magazine. Analyzes Petroleum Industry's Economic Situation and Markets		Each Issue	
Natural Gas.	Why Natural Gas is Outpacing Oil.	Henry J. Struth	Jan.	133
	What Federal Control Means to Natural Gas Producers.	Charles F. O'Connor	Nov.	141
Offshore.	12 Candid Views of Drilling's Future.	Don E. Lambert	Oct.	115
Personnel.	Growing Competition for Business, Science and Engineering Talent.	Frank Ikard	June	120
Pilfering.	Are Your Employees Honest?	Norman J. Jaspan	March	90
Research.	What Industry Research Produced in 1964.	Don E. Lambert	May	17
	Energy R and D – Is Federal Involvement Getting Out of Hand?	Don E. Lambert	Aug. 1	15
Reserves.	Proving Up of Oil Reserves Fails to Equal Production		Feb. 15	110
	Gas Reserves Increase in Spite of High Production		Feb. 15	112
	World Crude Reserves		Aug. 15	86
	World Gas Reserves		Aug. 15	91
Secondary Recovery.	Undeveloped Secondary Recovery Acquisitions Can be Financed.	E. G. Jackson	Sept.	108
	The Secondary Recovery Boom.	Don E. Lambert.	Nov.	11
Shale Oil.	Shale Oil Projects are Increasing.	Irvin Nielson	Aug. 1	91
Supply.	(See Demand.)			
Unitization.	What to Expect From IOCC Efficiency Report.	Don E. Lambert	Feb. 1	25
Wells Completed.	Drilling Activity: Monthly Record of Wells Completed and Wells Drilling in U.S., by States; Tables, Charts and Comments. In front part of magazine		Each Issue	
	U. S. Drilling Upturn is Predicted for 1965		Feb. 15	97
	Average Number of Active Rigs Up in 1964		Feb. 15	99
	Seven Area Depth Records Established During 1964.		Feb. 15	100
	1.6% Rise in U. S. Wildcat Drilling Forecast		Feb. 15	108
Wells Producing.	Artificial Lift Installations To be Up Slightly in 1965.		Feb. 15	103
	Producing Oil Wells Decrease Further		Feb. 15	104
	Producing Gas Wells Continue to Increase		Feb. 15	105
	Forest Oil Sets World Producing Depth Record		Feb. 15	106
	West Texas Deep Play Spawns New Production Depth Record.	Joseph A. Kornfeld	July	128
Wildcats.	(See Wells Completed.)			

INTERNATIONAL ARTICLES

Subject	Title	Author	Issue	Page
Annual International Outlook Issue.	Annual Reports on petroleum developments in 1964-65 in all countries of the world		Aug. 15	
Afghanistan.	Afghans Find New Gas Reserves on Oxus Plains		Oct.	179
Argentina.	Argentina's YPF Asks Drilling Help.	C. B. Lepak and M. E. Lynch	June	154
Australia.	Active Search Under Way in Australia's Amadeus Basin.	L. J. Logan	March	108
	Western Australia Due to be Explored More Actively.	L. J. Logan	April	135
	Will Officer and Amadeus Basins Both be Productive?	E. A. Webb	June	160
	Australia's Offshore Areas to be Explored Extensively.	Jan Howell	Aug. 1	84
	Continental Shelf, Basins and Gas and Oil Productive Areas of Australia		Aug. 1	85
	Queensland Drills Ahead as Australian Search Widens (Part 1).	D. H. Heron	Oct.	174
	Queensland Drills Ahead as Australian Search Widens (Part 2).	D. H. Heron	Nov.	156
Brazil.	Brazil Views its Offshore Prospects		Sept.	133
Canada.	Slight Western Canadian Drilling Upturn Forecast		Feb. 15	116
	Exploration Outlook – 1965		April	114
	Western Canada's Devonian Reef Play Surges Ahead.	Joseph A. Kornfeld	Sept.	124
Chile.	Chile Continues Search as Magellan Area Slows Down.	Dr. J. E. Rassmuss	June	158
Colombia.	Strikes and Politics Hold Down Activity in Colombia.	Dr. J. E. Rassmuss	July	109
Crude Oil.	World Crude Oil Yield May Top 30 Million BPD in 1965		Feb. 15	113
Denmark.	New Onshore Danish Drilling Points to North Sea.	Joseph A. Kornfeld	Dec.	92
Germany, West.	Geophysical Case Histories Aid North Sea Exploration.	Rudolph G. Wuerker	Jan.	117
	North Sea Wildcatting Off to Early Start in 1965		March	89
Honduras.	Central America's First Oil Field Indicated in Honduras		Nov.	150
Israel.	Israel May Have Many Jurassic Oil Accumulations		Feb. 1	74
Latin America.	Common Market is Aim of Latin Americans in ARPEL		May	176
	Latin American Government Oil Firms Plan Mutual Aid.		Dec.	99
Libya.	Libya – A Dynamic New Arab Oil Power.	Mel Hobbs	June	147
	Aerated Drilling Pays Off.	A. H. G. Pinks	Aug. 1	71
	Libya Becoming One of World's Top Gas and Oil Exporters		Aug. 15	68
Mexico.	Director General of Pemex Outlines Basic Policies.	Anthony Gibbon	July	118
	Exploration Outlook – 1965		April	114
Nigeria.	Kermac Rig 46's 7,000 Mile Trip to Nigeria.	Merlin Burnette	Aug. 1	107
	Drilling and Producing Wells Offshore from Nigeria		Aug. 15	76
North Sea.	Exploration's Widening Technology.	Harrison T. Brundage	Feb. 15	87
	Wildcatting Off to Early Start in 1965		March	89
	North Sea Drilling: Technical and Legal Problems		May	121
	North Sea Drilling Effort Begins to Pick Up Speed.	Mel Hobbs	Aug. 15	65
	North Sea Hopes Spurred by Two Wildcat Gas Tests.		Dec.	117
Spitsbergen.	Amoseas' Spitsbergen Test is World's Northernmost Wildcat.	Joseph A. Kornfeld	Oct.	164
Switzerland.	Swiss Gas and Oil Search Quickens.	Roland C. Michel	Aug. 1	88
Venezuela.	Santa Barbara Play Spreads in Center of Lake Maracaibo.	M. E. Lynch and C. B. Lepak	Oct.	153
World.	Drilling Outside U.S. and Canada is Holding Steady		Feb. 15	116
	World Crude Oil Yield May Top 30 Million BPD in 1965		Feb. 15	113
	World-Wide Offshore Activity Roundup.	Harrison T. Brundage	May	102
	Where Offshore Rigs are Operating Throughout the Free World.	Mel Hobbs	May	116
	World Oil Supply Expanding to Satisfy Growing Demand. (Article Includes Table Showing World Petroleum Demand and Supply by Regions, 1964 and 1963)		Aug. 15	80
	World Crude Production Will Top 30 Million BPD in 1965. (Article Includes Table Showing World Crude Oil Production and Producing Wells, by Countries, 1964 and 1963)		Aug. 15	82
	Free World Drilling in 1965 Nearly Same as Last Year. (Article Includes Table Showing Forecasts of Free World Drilling in 1965 and Comparisons with 1964 and 1963, by Countries)		Aug. 15	84
	World Crude Oil Reserves Exceed 350 Billion Barrels. (Article Includes Table Showing Estimated Proved Crude Oil Reserves in World, by Countries, at End of 1964 and 1963)		Aug. 15	86
	World Geophysical Activity on Plateau for Two Years. (Annual Survey of Geophysical Crews in Operation, by Countries, as compiled by Society of Exploration Geophysicists.)		Aug. 15	88
	World Gas Reserves Expand to 900 Trillion Cubic Feet. (Article Includes Table Showing Gas Reserves, by Countries, at End of 1964 and 1961)		Aug. 15	91

EDITORIALS

Subject	Title	Author	Issue	Page
	In an Upturn, a Lesson to Learn.	Donald E. Kliewer	Jan.	11
	What Suppliers Owe the Public . . . and Themselves	Donald E. Kliewer	Feb. 1	11
	International Petroleum Industry's "MER" is Depending More and More on Politics.	Donald E. Kliewer	Feb. 15	9
	Blueprint for a New Breed?	Donald E. Kliewer	March	9
	It All Depends on the Story You Want to Tell –		April	7
	Why Does Make a Difference.	Donald E. Kliewer	May	7
	Petroleum Engineer Shortage Begins in the High Schools.	Donald E. Kliewer	June	7
	New Path – Even for Government.	Donald E. Kliewer	July	9
	The Government Could Help.	Donald E. Kliewer	Aug. 1	10
	100 Pages of Proof.	Donald E. Kliewer	Aug. 15	7
	Welcome, Blame.	Donald E. Kliewer	Sept.	9
	Real Need Recognized.	Earle C. Hellums	Oct.	7
	Enlightenment, then Understanding.	Donald E. Kliewer	Oct.	7
	The "Multi-Million Dollar" Metric System.	Donald E. Kliewer	Nov.	7
	100 Down, at Least 100 to Go.	Donald E. Kliewer	Dec.	7

INDEX OF MAPS

Subject	Title	Issue	Page
Africa.	Petroleum Producing Areas of Africa	Aug. 15	143
Argentina.	Oil and Gas Field, Pipe Lines and Sedimentary Basins of Argentina	Aug. 15	113
Asia, Far East.	Petroleum Producing Areas of Far East	Aug. 15	192
Asia, Middle East.	Petroleum Producing Areas of Middle East	Aug. 15	161
Australia.	Mereenie Gas Field and Other Structures in Amadeus Basin, Northern Territory	March	110
	Major Basins and Oil and Gas Fields of Western Australia	April	135
	Amadeus and Officer Basins, Geology	June	161
	Australia's Continental Shelf, Sedimentary Basins, and Oil and Gas Productive Areas, Including Esso's Gippsland Shelf No. 1 Gas Discovery, Offshore from Southeastern Victoria	Aug. 1	85
	Oil and Gas Fields, Sedimentary Basins, and Continental Shelf of Australia	Aug. 15	72
	Queensland's Towns, Roads, Railroads, and Vegetational Regions	Oct.	174
	Locations of Wells Drilled in Queensland in 1964 and Early 1965	Oct.	177
Bolivia.	Oil and Gas Fields, Pipe Lines, Refineries, and Sedimentary Basins of Bolivia	Aug. 15	109
Brazil.	Brazil's Continental Shelf Areas. (Fig. 1)	Sept.	133
	Todos os Santos Bay and Adjacent Areas (Fig. 2)	Sept.	133
Canada.	Alberta: Redwater Reef and Distribution of Late Devonian	May	141
	Alberta: Structural Contours on Top of Redwater Reef	May	142
	Oil and Gas Fields, Pipe Lines, and Refineries of Canada	Aug. 15	97
Central America and West Indies.	Oil and Gas Producing Areas of Caribbean Region	Aug. 15	99
Chile.	Oil and Gas Fields, Pipe Lines, and Gas Producing Plants in Strait of Magellan Area	Aug. 15	110
	Map Showing New Products Pipe Lines in Central Chile, Connecting Refineries at Concon and Concepcion with Santiago	Aug. 15	111
Colombia.	Oil and Gas Fields, Pipe Lines, Refineries, Petro-Chemical Plants, and Gas Processing Plants in Colombia.	Aug. 15	105
Czechoslovakia.	Oil and Gas Fields, Pipe Lines, and Refineries of Czechoslovakia	Aug. 15	136
Denmark.	Denmark's Prospective Trends. (New Onshore Drilling Points Toward North Sea)	Dec.	92
Ecuador.	Oil and Gas Fields of Ecuador and Peru	Aug. 15	107
Europe.	Petroleum Producing Areas of Europe	Aug. 15	114
	Oil and Gas Fields, Pipe Lines, and Refineries of Eastern European Countries (East Germany, Poland, Czechoslovakia, Austria, Hungary, Rumania, Yugoslavia, and Bulgaria)	Aug. 15	134
Germany, East.	Oil and Gas Fields, Pipe Lines and Refineries of East Germany	Aug. 15	138
Germany, Northwest.	Regional Magnetic Anomalies	Jan.	118
	Regional Gravity Anomalies	Jan.	119
	Regional Seismic Travel-Times	Jan.	120
	Structures and Some Oil Fields	Jan.	121
Honduras.	Honduras, Caribbean Coastal Strip	Nov.	150-51
Hungary.	Oil and Gas Fields, Pipe Lines, and Refineries of Hungary	Aug. 15	138
Israel.	Kokhav-Brur-Niram Fields, Jurassic Trend.	Feb. 1	74
Libya.	North Part of Sirte Basin	Aug. 15	68
Mexico.	Oil and Gas Producing Areas, Pipe Lines, and Refineries of Mexico	Aug. 15	98
Netherlands.	Locations of Wildcats Drilled for Gas in the Netherlands since January 1964	Aug. 15	119
Nigeria.	Offshore and Onshore Licenses and Leases, Oil Fields, Pipe Lines, and some Apparent Offshore Oil Discoveries.	Aug. 15	146
North America.	Producing Areas of North American Continent	Aug. 15	92

INDEX OF MAPS—Continued

Subject	Title	Issue	Page
North Sea.	Geological Trends, Nearshore Production, Wildcats	March	89
Oceania.	Petroleum Producing Areas of Oceania	Aug. 15	89
Persian Gulf Area.	Oil and Gas Fields, Pipe Lines, and Concessions in and Adjacent to Persian Gulf (Iran, Iraq, Kuwait, Neutral Zone, Saudi Arabia, and Persian Gulf Offshore Areas)	Aug. 15	170
Peru.	Oil and Gas Fields of Ecuador and Peru	Aug. 15	107
Russia.	Major Oil and Gas Producing Areas of the U.S.S.R.	Aug. 15	132
South America.	Producing Areas in South America	Aug. 15	101
Spitsbergen.	Geological map of Spitsbergen. Amoseas' Spitsbergen Test	Oct.	164
Switzerland.	Map of Switzerland, Shows Recent Gas Discovery at Pfaffnau South 1 and Other Tests Drilled in Switzerland Since Commencement of Exploration There	Aug. 1	89
United States.	Geologic Map of South Dakota	Feb. 1	79
	Abo Reef and Detritus Trend, Eddy and Lea Counties, New Mexico	March	99
	Abo Reef-detritus Subsurface Structural Map, New Mexico	March	105
	Jurassic Drilling in East Texas Basin	March	113
	Sedimentary Basins of U.S. and Current Activity	April	114
	Jurassic Trends and Recent Oil Discoveries in South Central Mississippi	April	117
	Deep Minnelusa Oil Find and Active Drilling, Powder River Basin, Wyoming	April	121
	Favorable Cambro-Ordovician Trends and Recent Discoveries in Central and Northeastern Ohio	April	125
	Pheasant Subsurface Structural Prospect, Matagorda County, Texas	April	128
	Subsurface Structural Map of Extreme North-Central Part of North Dakota and Adjacent Area in Canada	April	129
	Mid-Continent. Areas of Fireflood Activity	June	172
	Nevada. Lower Paleozoic Depositional Environments	July	88
	Nevada. Antler Orogenic Belt, Late Paleozoic Times	July	88
	Green River Formation in Utah, Colorado and Wyoming, in "How to Evaluate Oil Shale by Well Log Analysis."	Aug. 1	94
	8,000-Square-Mile Kansas-Oklahoma Area. Productive Areas As Of March 1956 (Fig. 1)	Sept.	96
	8,000-Square-Mile Kansas-Oklahoma Area. Productive Areas As Of January 1965. (Fig. 2)	Sept.	96
	Harper Ranch Area, Clark County, Kansas (Fig. 3)	Sept.	96
	Part of Cimarron County, Oklahoma Panhandle (Fig. 4)	Sept.	96
	Part of Beaver County, Oklahoma. Wells As Of January 1965 (Fig. 5)	Sept.	96
	Geochemical Anomaly Map, 1946, League City Area, Galveston County, Texas (Fig. 3)	Nov.	163
	Geochemical Anomaly and Development Map, 1953, League City Area, Galveston County, Texas (Fig. 4)	Nov.	163
	Geochemical Anomaly and Development Map, 1954, League City Area, Galveston County, Texas (Fig. 5)	Nov.	164
	Geochemical Anomaly and Development Map, 1964, League City Area, Galveston County, Texas (Fig. 6)	Nov.	164
	Val Verde and Delaware Basins of West Texas	Dec.	110
Venezuela.	Leases and Fields in Lake Maracaibo	May	105
	Oil Fields, Pipe Lines, Refineries, and Sedimentary Basins of Venezuela	Aug. 15	103
	Prospective Santa Barbara Sand Area, Lake Maracaibo	Oct.	153
	Generalized Santa Barbara Zone Dip, Central Lake Maracaibo	Oct.	153
World.	International Offshore Map. Shows North Sea Region, Alaska's Kenai Peninsula and Cook Inlet, Persian Gulf Oil Fields, Nigeria, Louisiana Gulf Coast Offshore Fields, Washington-Oregon Coast, and California Offshore Areas. A Special supplement: 34 by 43-Inch Wall Map	May	Insert
	Petroleum Producing Areas of The World	Aug. 15	79

INDEX BY AUTHORS

Author	Article or Item.	Issue	Page
A			
Algermissen, S. T. See Bardsley, S. R.			
B			
Ballard, Don.	How to Make Money from Quick Cycle Units	May	151
Bardsley, S. R. and Algermissen, S. T.	How to Evaluate Oil Shale by Well Log Analysis	Aug. 1	94
Barnett, A. V., Kozey, E. O. and Spencer, W. C.	Free Piston Engines Power 8,000 hp in Situ Combustion Power Plant	July	71
Bates, R. E., Jr.	Economics of Percussion vs. Air Rotary Drilling	Feb. 1	51
Bates, T. P. See Riley, E. A.			
Beatty, William A.	Solving LACT Problems in the Anadarko Basin	July	106
Berry, V. J., Jr. See Galloway, G. H.			
Biederman, Edwin W., Jr.	Crude Oil Composition – A Clue to Migration	Dec.	78
Blackman, W. P.	Path Strikes Spark Hot Drilling Play	Jan.	125
Boone, R. L. and Moore, Don.	Core Slabbing Aids Detailed Study, Lowers Storage Cost	July	99
Borrego, Edward C.	Free World Oil Demand May Triple in 35 Years	Dec.	106
Boughton, L. D. and Dellinger, T. B.	New Cementing Process for Big Pipe in a Salt Plug	Jan.	105
Boyd, Floyd W., Jr. and McRae, Richard C.	Pan American Finds Square Drill Collars Effective	June	127
Brandt, H., Poynter, W. G. and Hummell, J. P.	Stimulating Viscous Oil Reservoirs with Downhole Air-Gas Burners	Sept.	91
Broussard, Pat J.	Dee Underwood, Dave		
Brundage, Harrison T.	Exploration's Widening Technology	Feb. 15	87
Brundage, Harrison T.	World-wide Offshore Activity Roundup	May	102
Brundage, Harrison T.	Offshore Production Practices	May	109
Brundage, Harrison T.	Libya Becoming One of World's Top Gas and Oil Exporters	Aug. 15	68
Burnette, Merlin.	Kermac Rig 46's 7,000 Mile Trip to Nigeria	Aug. 1	107
C			
Caldwell, H. L.	Latest Techniques in Big Hole Drilling-Completion	Sept.	103
Castro, Luis F. and Oden, J. H.	New Tool Automatically Controls Waterflood Injection Rates	Oct.	156
Collings, B. J., See Goins, W. C.			
D			
da Silva, Filipe A. M.	How to Safely Solve Plugged Bit Problem	Aug. 1	114
Decker, L. B. See Ireland, W. C.			
Delacour, J.	French Flexible Drillstem System Looks Good	July	98
Dellinger, T. B. See Boughton, L. D.			
Dellinger, Thomas B.	Mechanics and Economics of Big Hole Drilling (Part 1)	Oct.	115
Dellinger, Thomas B.	Mechanics and Economics of Big Hole Drilling (Part 2)	Nov.	126
Dellinger, Thomas B.	Mechanics and Economics of Big Hole Drilling (Part 3)	Dec.	100
Dowds, John P.	Mathematically-derived Prospects Yield Successful Discovery Case Histories.	Sept.	96
E			
Eckert, Lawrence A.	Solving Mechanical Problems in Steam Stimulated Wells	Dec.	89
F			
Fitzgerald, Don D.	How to Find Gulf Coast Gas with Sonic and Neutron Logs	April	140
Flickinger, D. H.	New Ideas in Fracturing Deep Wells	Oct.	149
G			
Galloway, G. H., Starnes, J. L., Berry, V. J., Jr., and Smith, Neal J.	What Management Expects of Explorationists	April	107
Garrett, J. H.	Bore Hole Stabilization	Nov.	152
Gary, James H.	Is Thermal Recovery the Answer to Economics Production of Shale Oil?	Aug. 1	98
Gaskell, T. F.	High-frequency Sound Pulser Echoes Help Map Sea Floor	Sept.	127
Gibbon, Anthony.	Director General of Pemex Outlines Basic Policies	July	118
Godbold, F. S.	Humble Recovers Attic Oil with Unique Inert Gas System	May	151
Goins, W. C., Jr., Collings, B. J., and O'Brien, T. B.	A New Approach to Tubular String Design (Part 1)	Nov.	135
Goins, W. C., Jr., Collings, B. J., and O'Brien, T. B.	A New Approach to Tubular String Design (Part 2)	Dec.	83
Goldsmith, Riley G.	Here's a Practical View of Oil Field Hydraulics Today	June	140
Green, C. F.	How to Cut Costs in Exploratory Drilling	July	103
H			
Harris, Francis N. and Padgett, John.	How to Restore Productivity from Mud Damaged Formations	Sept.	112
Hellums, Earle C.	Real Need Recognized	Oct.	7
Heron, D. E.	Queensland Drills Ahead as Australian Search Widens (Part 1)	Oct.	167
Heron, D. E.	Queensland Drills Ahead as Australian Search Widens (Part 2)	Nov.	156
Hobbs, Mel.	The Growing Cost-price Squeeze	Feb. 1	71
Hobbs, Mel.	Advancements in the Drilling Industry	Feb. 15	67
Hobbs, Mel.	Cost-price Squeeze Grips Well Servicing Contractors	March	93
Hobbs, Mel.	Offshore Drilling Practices	May	110
Hobbs, Mel.	Where Offshore Rigs are Operating Throughout the Free World	May	116
Hobbs, Mel.	Offshore Challenges	May	118
Hobbs, Mel.	North Sea Drilling	May	121
Hobbs, Mel.	Libya – A Dynamic New Arab Oil Power	June	147
Hobbs, Mel.	North Sea Drilling Effort Begins to Pick Up Speed	Aug. 15	65
Hobbs, Mel.	Mohole Phase II On Schedule, Cost Now Up To $100 Million	Oct.	129
Horton, Robert C.	Eastern Nevada is a Gamble, But Production is Rising	July	84
Horvitz, Leo.	Case Histories Show Results of Drilling Geochemical Prospects	Nov.	161
Howard, John.	Thermal Recovery Comes of Age	Jan.	95
Howell, Jan.	Australia's Offshore Areas to be Explored Extensively	Aug. 1	84
Hughes, Richard V.	Drag Bits Rate New Look in Light of Speed Drilling	March	93
Hutchison, Stanley O. and Mitchell, N. L.	Packed Hole Drilling Pays Off for SOCAL	Aug. 1	80
I			
Ikard, Frank.	Growing Competition for Business Science and Engineering Talent	June	120
Ireland, W. C. and Deckert, L. G.	Engineered Well Completions Solve Waterflood Communications Problem	Aug. 1	77
Ivanhoe, L. R.	Brackish, Glacial Strata are Likely Oil Source Beds	Feb. 1	75
J			
Jackson, E. C.	Undeveloped Secondary Recovery Acquisitions Can Be Financed	Sept.	108

INDEX BY AUTHORS—Continued

Author — Article or Item.	Issue	Page
Jackson, Ralph W. How to Find Productive Limits of Hydrocarbon Reservoirs (Part 1)	Oct.	167
Jackson, Ralph W. How to Find Productive Limits of Hydrocarbon Reservoirs (Part 2)	Nov.	131
Jackson, Ralph W. How to Find Productive Limits of Hydrocarbon Reservoirs (Part 3)	Dec.	97
Jaspan, Norman J. Are Your Employes Honest?	March	90
Jennings, Harley Y., Jr., How to Handle and Process Soft and Unconsolidated Cores	June	116
Johnson, Dr. Hamilton M. Latest Developments in Formation Evaluation	April	143
K		
Kliewer, Donald E. In an Upturn, a Lesson to Learn	Jan.	11
Kliewer, Donald E. What Suppliers Owe the Public and Themselves	Feb. 1	11
Kliewer, Donald E. International Petroleum Industry's "MER" is Depending More and More on Politics	Feb. 15	9
Kliewer, Donald E. Blueprint for a New Breed?	March	9
Kliewer, Donald E. It All Depends on the Story You Want to Tell	April	7
Kliewer, Donald E. Why Does Make a Difference	May	7
Kliewer, Donald E. Petroleum Engineer Shortage Begins in the High Schools	June	7
Kliewer, Donald E. New Path – Even for Government	July	9
Kliewer, Donald E. The Government Could Help	Aug. 1	10
Kliewer, Donald E. 100 Pages of Proof	Aug. 15	7
Kliewer, Donald E. Welcome, Blame	Sept.	9
Kliewer, Donald E. The "Multi-million Dollar" Metric System	Nov.	7
Kliewer, Donald E. 100 Down, at Least 100 To Go	Dec.	7
Klovan, J. E. Facies Analysis Aids Reef Exploration and Development	May	141
Knapp, S. R. New Bit Concept Helps Control Hole Deviation	Jan.	113
Kornfeld, Joseph A. Red River Oil Strike Stirs South Dakota Activity	Feb. 1	79
Kornfeld, Joseph A. New Strikes are Keeping East Texas Activity Hot	March	113
Kornfeld, Joseph A. and Travis, Maury M. Wyoming Oil Strike Sparks Million-acre Lease Play	April	176
Kornfeld, Joseph A. Sunoco-Felda Discovery Puts South Florida in the Spotlight	May	172
Kornfeld, Joseph A. Mid-continent Firefloods are Gaining Momentum	June	169
Kornfeld, Joseph A. West Texas Deep Play Spawns New Production Depth Record	July	128
Kornfeld, Joseph A. Deep Gas-distillate Strikes Bring Southeast Texas Drilling Play	Aug. 1	110
Kornfeld, Joseph A. Western Canada's Devonian Reef Play Surges Ahead	Sept.	124
Kornfeld, Joseph A. Million-acre Gas Field Under Development in San Juan Basin	Oct.	172
Kornfeld, Joseph A. and Travis, Maury M. There's New Life in Uinta Basin	Nov.	146
Kornfeld, Joseph A. New Onshore Danish Drilling Points Toward North Sea	Dec.	92
Kozey, E. O. See Barnett, A. V.		
L		
Lambert, Don E. Spending to Reach Near-record Level	Jan.	19
Lambert, Don E. What to Expect from IOCC Efficiency Report	Feb. 1	25
Lambert, Don E. Where Oil Stands in Today's Economy	March	13
Lambert, Don E. Most Firms Expect to Set New Earnings Records	April	11
Lambert, Don E. Smaller Firms' Share of U.S. Drilling and Production Declining	May	11
Lambert, Don E. What Industry Research Produced in 1964	May	17
Lambert, Don E. Petroleum and the Engineer Crisis	June	19
Lambert, Don E. Some Will Be Helped – Some Hurt in Changing Era for Crude Oil	July	13
Lambert, Don E. Energy R and D – is Federal Involvement Getting Out of Hand?	Aug. 1	15
Lambert, Don E. Nuclear Energy to Play Bigger Role in Petroleum	Aug. 1	17
Lambert, Don E. Needed: A Better Way to Control Natural Gas Wellhead Prices	Sept.	25
Lambert, Don E. Hurricane Betsy – Petroleum's Most Expensive Storm	Oct.	11
Lambert, Don E. An Oceanographer Looks at Betsy	Oct.	20
Lambert, Don E. 12 Candid Views of Drilling's Future	Oct.	115
Lambert, Don E. Well Logging Firms Gear for New Industry Trends	Oct.	181
Lambert, Don E. The Secondary Recovery Boom	Nov.	11
Lambert, Don E. Fall Meetings Stressed Three Themes: Drilling-Production Status, Future of Energy, Government-Public Relations	Dec.	11
Leisek, Joseph F. How to Overcome Severe Air Drilling Problems	July	95
Lepak, C. G. See Lynch, M. E.		
Logan, L. J. Active Search Under Way in Australia's Amadeus Basin	March	108
Logan, L. J. Western Australia Due to be Explored More Actively	April	135
Logan, L. J. Australia is Made Active by Widespread Discoveries	Aug. 15	72
Lynch, M. E. and Lepak, C. G. Argentina's YPF Asks Drilling Help	June	154
Lynch, M. E. and Lepak, C. G. Santa Barbara Play Spreads in Center of Lake Maracaibo	Oct.	153
Mc		
McPeters, K. D. and Moran, R. M. Key to Contractor Survival May Be to Upgrade Old Rigs	May	156
McRae, Richard C. See Boyd, Floyd W., Jr.		
M		
Michel, Roland C. Swiss Gas and Oil Search Quickens	Aug. 1	88
Moore, Dan. See Boone, R. L.		
Moore, Preston. Air-Gas Drilling Volume – Velocity Requirements	April	173
Moran, R. M. See McPeters, K. D.		
Morgan, W. B. Automatic Well Testing Pays Off on Sunray Fluid Injection Project	Oct.	161
Morrisey, Norman S. See Rummerfield, Ben F.		
Murff, J. T. See Taylor C. C.		
N		
Nielson, Irvin. Shale Oil Projects are Increasing	Aug. 1	91
O		
O'Connor, Charles F. What Federal Control Means to Natural Gas Producers	Nov.	141
Oden, J. H. See Castro, Luis F.		
Ormsby, George S. Efficient Desilting Can Help Cut Drilling Costs	May	145
Owens, William D. and Suter, V. E. Steam Stimulation for Secondary Recovery	June	100
P		
Padgett, John. See Harris, Francis N.		
Paschal, W. A., Jr. Combining Log Data Charts Speeds Formation Evaluation	March	79
Pinks, A. H. G. Aerated Drilling Pays Off	Aug. 1	71
Poynter, W. G. See Brandt, H.		
R		
Ramey, Joe T. Shallow Waterflooding Projects are Paying Off in New Mexico	Feb. 1	68
Rassmuss, Dr. J. E. Chile Continues Search as Magellan Area Slows Down	June	158
Rassmuss, Dr. J. E. Strikes and Politics Hold Down Activity in Colombia	July	109
Riendl, Joseph A. Logistics of Geophysical Operations in Alaska	Feb. 1	65
Riley, E. A. and Bates, T. P. Shallow 443-Acre Waterflood Recovers 2.5 Million Barrels of Oil in 4½ Years	Sept.	119
Roach, J. W. How to Apply Fluid Mechanics to Exploration (Part 1)	March	71
Roach, J. W. How to Apply Fluid Mechanics to Exploration (Part 2)	April	131
Rowley, Kermit G. Well Completion Ideas for Fluid Injection Projects	Dec.	73
Rummerfield, Ben F. and Morrisey, Norman S. How to Evaluate Exploration Prospects	April	126
Runyan, John W. First New Mexican Reef Detritus Oil Pools Found Downdip From Abo Trend	March	99
S		
Scott, Robert W. Vacuum Stabilizers Boost Income, Minimize Production Problems	Jan.	129
Scott, Robert W. Recent Developments in Production	Feb. 15	77
Scott, Robert W. Offshore Production Practices	May	124
Scott, Robert W. New Hydraulically Powered Rig Designed for Offshore Workovers	Dec.	94
Sheffield J. Riley, Jr. New $CaCO_3$ Lost Return Sealing Slurry Looks Good	Oct.	133
Sloat, Ben. How to Handle Produced Water for Reinjection on Waterfloods	March	85
Smith, Daryl L. Analyzing Gas Well Performance with Wellhead Performance	April	165
Smith, Neal J. See Galloway, G. H.		
Smith, William C. Asbestos in Drill Water Helps Cut Drilling Cost	Sept.	116
Spencer, W. C. See Barnett, A. V.		
Starnes, J. L. See Galloway, G. H.		
Storer, Todd C. Smackover Drilling Problems in South Texas	June	108
Storts, J. D. Operating and Maintaining Oil Field Metering Equipment	Aug. 1	102
Strickler, J. D. How SOCAL Monitors Offshore Production	Feb. 1	60
Struth, Henry J. Why Natural Gas is Outpacing Oil	Jan.	133
Suter, V. E. See Owens, William D.		
Swaim, Howard W. Pumping Short Courses Can Make Money for Your Company	March	63
T		
Taylor, C. C. and Murff, J. T. Humble's Twin-Rig Drilling Program is Cutting Costs	Oct.	140
Terris, James. How and When to Automate Well Producing Facilities	June	123
Todd, M. B. Wide-spaced Waterflood Pays Off for Marathon	July	90
Travis, Maury M. See Kornfeld, Joseph A.		
U		
Underwood, Dave, Broussard, Pat J. and Walker, Wayne. Long Fluid Life Cementing Technique Looks Good	June	136
W		
Walker, Wayne, See Underwood, Dave		
Webb, E. A. Will Officer and Amadeus Basins Both be Productive?	June	160
Weigle, L. J. Executive Obsolescence – its Causes and Cures	April	159
Weiss, Herbert H. Fuel Performance Maps Used to Evaluate Diesel Engine Efficiency	April	157
Williams, Jack C. Small, Packaged Gasoline Plants Boost Income from Lease Gas Streams	June	133
Wilson, W. W. Undeveloped Secondary Recovery Acquisitions Can be Financed	Sept.	108
Wuerker, Rudolph G. Geophysical Case Histories Aid North Sea Exploration	Jan.	117
Y		
Young, K. G., Jr. Economic 600-Foot Water Operations Expected	April	151